A Work Project presented as part of the requirements for the Award of Master's Degree in Finance from the *Nova School of Business and Economics*

Carry and Trend-Following Strategies

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A Directed Research Project carried out with the supervision of

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January 2016

Abstract

Recent research has shown that carry and trend strategies when combined lead to significant risk-adjusted returns that can be very attractive to investors, at a low cost with small and positive skewness. This study proposes to combine both carry and trend-following, considering a data set of ten years (09/2005-09/2015), within a portfolio composed by three major asset classes: currencies, commodities and equity indices. Following a futures-based methodology, the obtained results show that, indeed, the strategy results inevitably in higher returns and greater sharpe ratios for every asset class in study. This outcome results from the fact that trend proved to provide a significant hedge to the downside risk that carry is exposed to.

Keywords: Carry, Trend-following, Hedge, Futures

1. Motivation

This paper studies the combination of two different investment strategies, carry and trend-following, within a portfolio composed by currencies, commodities and equity indices. First, both strategies will be tested separately and only after analyzing their individual behavior, a joint test will be performed and discussed. The aim is to comprehend if, when working together as one strategy, higher returns urge, at what cost and the reason behind it.

It has been, until very recently, a target of discussion and there is already some evidence that this strategy is very attractive. Still, a lot of questions remain when dealing with this carry and trend together, it is still not clear with which markets it works and how. Carry strategies, which benefit from price stability during the holding period, have proved to project extremely high returns at the significant cost of high volatility and negatively skewness. Opposed to carry's behavior, trend strategy benefits when prices move, derived usually by economic events. Trend-following strategies have the potential to reach positive excess returns at a low cost. Therefore, by combining both strategies because, there seems to be an opportunity to reach better returns, "both are mutually diversifying, especially in extreme cases"[1].

Clare, Seaton, Smith and Thomas (2015) study carry and trend following returns in the foreign exchange market and proved that, carry trade strategies lead to remarkable high returns and that a significant hedge to its exposition to market risk may be offer when trend is included. Accordingly, "(…) carry plus trend following dominates in terms of

[1] Bhansali et al., "Carry and Trend in Lots of Places."

risk, return and drawdowns"[2]. This paper tests this approach only in currencies, would it this benefic to other asset classes?

Bhansali, Davis, Dorsten, and Rennison (2015), in "Carry and Trend in Lots of Places", test this same strategy, by using a different approach and categorize daily returns of carry and trend within different groups. Results are not very clarifying but conclusions are similar, "trend works far better when carry is in the agreement"[3].

In this paper I'm testing the effectiveness of a carry and trend following strategy. I built this strategy using the same future-based methodology for carry as the one used by Koijen (2015) in *Carry*, together with a trend-following strategy considering moving averages of 3, 6 and 12 months and, finally, combining them using the same approach as Clare et al. (2015) in *Carry and Trend-following in the Foreign Exchange Market*. The study is performed within a broader set of asset classes, taking into account not only the foreign exchange market as in Clare et al. but by also adding commodities and equities' markets. Within each asset class I studied different markets from the ones used on the researches I'm supporting my paper on, and for last, I'm considering a smaller and more recent time frame, from 2005 to 2015.

The analysis will be divided by asset class, with a brief analysis to the performance of each portfolio, measured by excess returns, volatilities, sharpe ratios, skewness and kurtosis. Gathered the results, the model is regressed and a joint performance test is executed in order to find some elucidations to the excess returns carried by a carry-trend strategy.

The first part briefly summarizes the global carry and trend following panorama as

[2] Clare et al., "Carry and Trend Following Returns in the Foreign Exchange Market."
[3]Bhansali et al., "Carry and Trend in Lots of Places."

well as the purpose of the model. The remaining paper is structured as follows: section two describes the methodology implemented to produce the returns of each of the two investment strategies and analyzes its results separately. Section three illustrates the results of combining the two previous strategies, which corresponds to the final model, and again an analysis of the outcome is performed. Follows section four, which studies the robustness of this model by introducing the standard unconditional CAPM and the downside risk CAPM, and finally, section 5 concludes.

2. Data and Methodology

2.1.Data

Considering a time horizon of 10 years, from September 2005 to September 2015, I assembled a dataset of six markets in each of the three asset classes referred above. For equity indices I collected data from 6 countries: U.S. (S&P 500), Canada (S&P TSE 60), France (CAC), Germany (DAX), Japan (Nikkei) and UK (FTSE 100). Regarding currencies I selected the euro (EURUSD), Australian dollar (AUDUSD), Japanese yen (JPYUSD), US dollar (USD), Canadian dollar (CADUSD), British pound (GBPUSD), and Swiss franc (CHFUSD). Finally, for commodities, cotton, coffee, gasoil, crude oil, silver and gold, were the ones designated for the analysis in question. The data was collected from Bloomberg and for each market I collected the data on spot and future. Fama and French factors (MRP, SML and HML) were obtained from the data library of Kenneth French.

All data used in this paper contains daily observations during 2005-2015 with values in US dollars.

2.2. Carry Returns

According to Koijen, Moskowitz, Pederson and Vrugt (2015), "A security's expected retun can be decomposed into its "carry" and its expected price appreciation", thus, carry is defined as the security's return assuming its price does not change. The interpretation of this concept varies according to the asset class in study, i.e., to the "market conditions" in question. For example, in the case of currencies, carry could be defined as the returns if the currency exchange rate stays the same, while in in commodities, would be defined, as if dividend yields didn't change.

Conceptually, carry is applied only to currency markets, however, I broad up the analysis by also taking into analysis equity and commodity markets. Carry is then computed equally for all asset classes. My goal is to study the behavior of each market when this strategy is applied and to understand if there is a pattern or not within the different classes. Recent research demonstrated that, when applied to other asset classes, carry returns perform significantly well, with high returns and considerable risk. The results shown in the following section result accordingly.

Using a futures-based methodology, an approach proposed by Koijen (2015), I assumed 1-month future contracts for each class. Since carry is defined as the futures excess return of an asset, assuming market conditions do not change, spot prices are constant from t to t+1, $S_{t+1} = S_t$. Thus, we have that $F_{t+1} = S_{t+1} = S_t$ and carry is defined as:

$$C_t = \frac{S_t - F_t}{X_t}$$

Assuming that the amount of capital invested is the same as future contract price, meaning that the investor is taking a "fully-collateralized" position $X_t = F_t$, returns can be defined as:

$$r_t = \frac{S_t - F_t}{F_t}$$

For all asset classes I built a portfolio, daily rebalanced, with weights distributed equally through a carry-rank approach, going long on the top 50% carry returns and short on the other 50%.

Table 1. shows the results of a simple carry investment strategy, for the three different asset classes. Having 6 markets within each asset class, the results represent a strategy of buying the top 3 best performance future contracts and selling the remaining.

Generally, and in accordance with recent research, carry trade leads to high returns along with an attractive sharpe ratio and high volatility. As it is proved by this model, currency carry trade strategies have returns with significantly negative skewness results (-1,109), meaning that there is greater risk for extremely negative outcomes. Kurtosis shows a significantly peaked distribution (12,756) indicating fat-tailed events with large occasional profits and losses, i.e., the strategy is exposed to extreme events.

Though, if we take a look at the sharpe ratios, currencies and commodities markets have similar sharpe ratios, 0,27 and 0,26 respectively. Risk-adjusted returns prove that both markets present similarly attractive results for investors. However, when analyzing the results for commodities and observing its statistics individually, we'll see that it appears to be a more appealing market, than currencies, to invest in.

Overall, commodities market performs significantly better than other markets, nonetheless it is also subject to an extremely high volatility. Not only presents the highest

returns, 6,21% against 1,66% for equities, but also more symmetric results, meaning it is subject to less extreme and undesirable events. This effect can be attributed to the fact that the commodities market is extremely diversified, and has the most diverse assets from energy, metals, and agriculture.

Table 1

Carry Summary Statistics 2006 – 2015

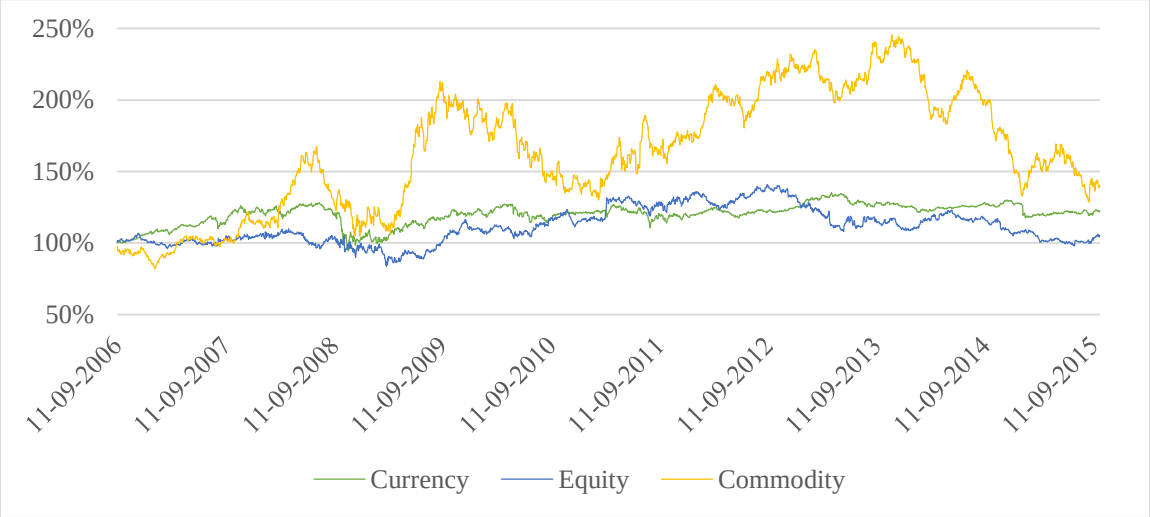
	Currency	**Equity**	**Commodities**
Annualized Return (%)	2,68%	1,66%	6,21%
Annualized Volatility (%)	10,20%	14,77%	22,79%
Sharpe Ratio	0,263	0,112	0,273
Max. Daily Return (%)	3,81%	6,47%	8,01%
Min. Daily Return (%)	-6,49%	-6,71%	-6,93%
Skew	-1,108	0,224	0,092
Kurt	12,756	5,434	2,393

Although carry trade shows significant negative skewness, this is not a common situation for the remaining asset classes. Equities and commodities markets, present, not only close to zero but also, positive skewness returns (0,224 and 0,092, respectively). Thus, investors can rely on positive outcomes, and bad scenarios are less probable to happen. The same happens with kurtosis statistics, the remaining asset classes have values close to the average kurtosis (Kurt = 3) which means that returns are subject to few extreme events, 5,434 and 2,393 respectively.

The strategy proved not to work so well in the equity's market, presenting very low returns and high volatility. These results go against the findings of Koijen et al. (2015) "a carry strategy works at least as well in other asset classes, too, performing markedly better in equities (…) than in currencies, and performing about as well as currencies in

commodities", which may be attributed to the fact that they used a much larger sample (30 years).

Graph I – Carry Cumulative Returns



Therefore, carry provides positive and symmetric returns to a wider set of asset classes besides currencies, as it is proved above. In graph I, we can see that cumulative returns are consistently above 100%, except for the period of 2008 when returns suffer a continuous decrease. This period corresponded to the global economic downturn started in 2008, giving us an insight that this strategy performance is dependent on global market's performance.

Gathered all the information, we can concluded that carry is indeed not restricted to carry trade "Carry is a broader concept that can be applied to many assets in general and is not unique to currencies"[4].

[4] Kojen et al,. "Carry"

2.3.Trend-following Returns

Trend-following strategy consists on taking long or short positions according to the market trend. On assets for which trend is positive (negative), i.e. last traded future contract price is higher (lower) than the x-month moving average future contracts, investors go long (short).

$$F_t > Average(F_{t-12m;t-1})$$

Its profitability relies on the existence of sustainable future contract's price trends. If the price of a market has been rising over the last year, a trend strategy expects that prices will continue to rise, and if prices have been falling, it is expected that it continues to fall. On the downside, by taking short positions when markets are falling, trend-following strategies will eventually miss market turning points at the beginning of a downturn and initially take losses, "Trend following is generally rules-based it can aid investors because losses are mechanically cut short and winners are left to run – reverse of investors natural instinct"[5].

According to Clare, Seaton, Smith, and Thomas (2015) "Recent research has demonstrated the strength of trend following strategies in providing significant excess return in a number of financial markets without substantial or significant skewness". Trend was performed using a 3, 6 and 12-month moving averages and results were compared. It would be expected that when using shorter periods for the moving average, trend returns would be higher. However, when comparing the results, except for currencies, the 12-month moving average trend performs slightly better than others, with higher risk-adjusted return. Indeed, for currencies, a 6-month filter provided better returns with better sharpe ratios, but with a more asymmetric distribution in returns (see

[5] Clare et al., "Carry and Trend Following Returns in the Foreign Exchange Market."

Appendix 2). Overall, results are more interesting using a 12-month moving average, therefore the remaining paper will be focused using a 12-month moving average for trend returns.

Analyzing the results obtained at table 2 we can state that, in comparison with carry, trend returns are considerably lower, but so is its risk. However, contrary to what general literature defends, trend results display, although small, negative skewness.

Currencies present a much stable pattern when following a trend strategy, one less volatile. Returns are smaller by more than half when compared to carry, and don't even reaching the 1% annualized return (0,56% vs 2,68%), but the difference in sharpe ratio is very small, 0,24 and 0,26, respectively. The remaining statistics present, although negative, very small skew returns (-0,018 vs -1,12), and kurtosis values are much closer to the normal distribution (5,80 vs 12,76).

Table 2

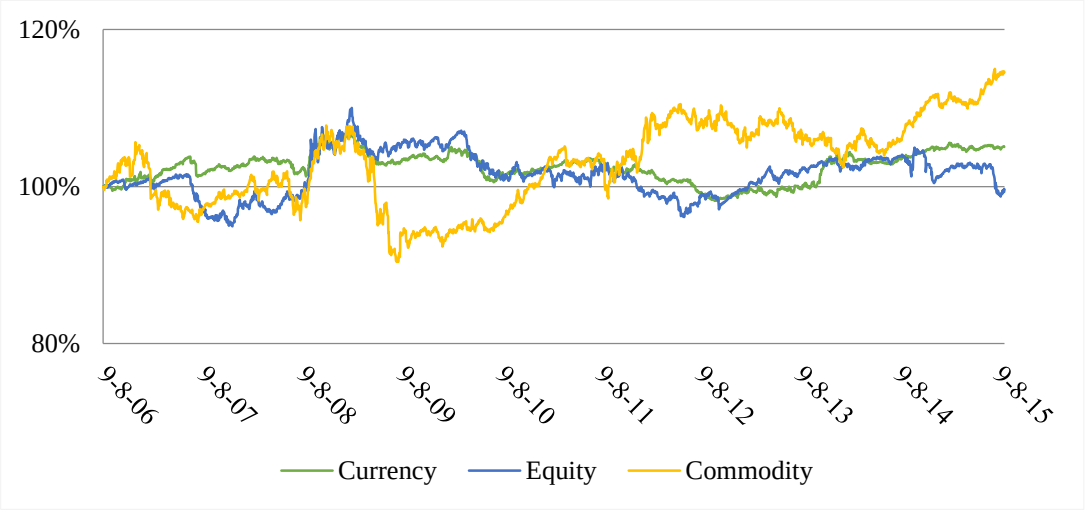
12-Month Trend Summary Statistics 2005 – 2015

	Currency	**Equity**	**Commodities**
Annualized Return (%)	0,56%	0,01%	1,61%
Annualized Volatility (%)	2,29%	3,94%	5,65%
Sharpe Ratio	0,242	0,002	0,285
Max. Daily Return (%)	1,14%	1,52%	2,58%
Min. Daily Return (%)	-0,93%	-1,75%	-2,28%
Skew	-0,018	-0,065	-0,235
Kurt	5,801	7,020	4,974

Commodities class present the highest sharpe ratio among the three markets (0,29), as well as returns (1,61%) and the highest standard deviation (5,65%). Regarding

equities, its performance is once again disappointing, with annualize returns that do not even reach the 0,1% and its exposed to a large volatility of 3,94% and a large kurtosis of 7,02. This strategy seems very unappealing to a risk-averse investor, where sharpe ratio is 0,002.

Graph II -12 Month Trend Cumulative Returns (2006 – 2015)



Carrying a strategy of trend alone during this time frame does not seem very appealing, returns are small and stable, risk-adjusted return is not impressive, so if we are not considering a risk-averse investor it may not be an attractive strategy to follow. However, as it will be shown in the next section, when combined with carry, the strategy will reach much interesting results.

3. Empirical Application: combining carry and trend-following strategies

I now address the question of whether or not the combination of these two strategies offers significant value to investors. According to Bhansali, Davis, Dorsten, and Renninston (2015) in their recent article in the Journal of Portfolio Manager, *Carry and Trend in Lots of Places*, "Conceptually we can think as carry as a position that harvests risk premiums, and thus, it performs better in situations that prices don't move much, whereas trend-following is a long-tail option replication strategy (Fung [2002]) which benefits when prices move as a consequence of fat-tailed events such as those experienced during financial crisis"[6]. Intuitively, it seems appealing to combine both strategies since their outcomes seem to act distinctive in broader states of scenarios, reducing the exposition to risk that the strategies are subject to.

In order to obtain the final portfolio results, I summed up the returns of both strategies, so taking long positions when both carry and trend-following, were positive, short positions when both returns were negative, and no position if signs were opposite.

Looking at table 3, the expected annualized return of this carry-trend strategy is indeed higher for every asset class. There is an overall improvement in currencies, returns are higher (3,23%) and volatility remains with the same value as for carry (10,11%). In consequence, risk-adjusted return (0,320) is obviously improved. The skewness of -1,14 and a kurtosis 9.83, indicating that these high performance metrics still come with some risk. The returns are clearly left-tailed, and are very peaked, meaning that extreme outcomes, especially negative ones are very likely to occur. Surprisingly, for carry-trend strategies, returns are as skew, if not slightly more, as those of carry alone. This means

[6] Bhansali, Davis, Dorsten, and Renninson "Carry and Trend in Lots of Places."

that, during this time frame, not even trend can totally control the exposition of carry to outside events.

Table 3

Carry and 12M-Trend within Asset Class 2006 – 2015

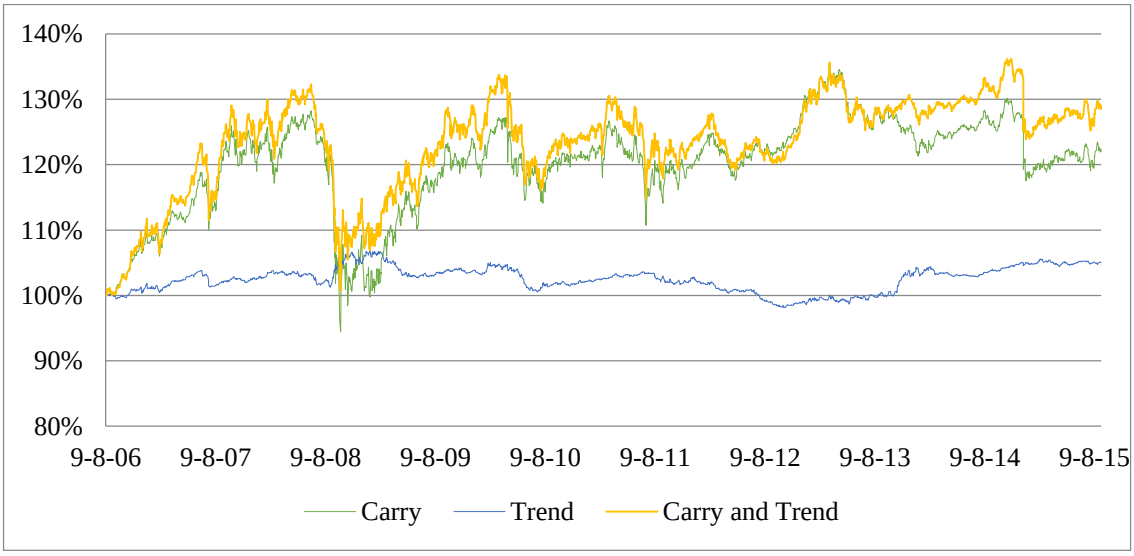
	Currency	Equity	Commodities
Annualized Return (%)	3,23%	1,66%	7,82%
Annualized Volatility (%)	10,11%	14,68%	23,01%
Sharpe Ratio	0,320	0,113	0,340
Max. Daily Return (%)	3,26%	5,02%	7,91%
Min. Daily Return (%)	-5,88%	-7,72%	-7,20%
Skew	-1,138	-0,044	-0,051
Kurt	9,826	4,458	1,977

Consistent with previous results, commodity's results are more robust than currency and equity's. Returns are considerably better, with an annualized average of 7,28%, a high volatility of 23,01% and a sharpe ratio of 0,34. The distribution metrics are favorable for investors, as the returns are slightly negative skew (-0.051), meaning that the chances of extreme negative outcomes exist but are low. The kurtosis shows a value of 1,977, which is slightly lower than that of a normal distribution (3), indicating that the returns do not have many outliers.

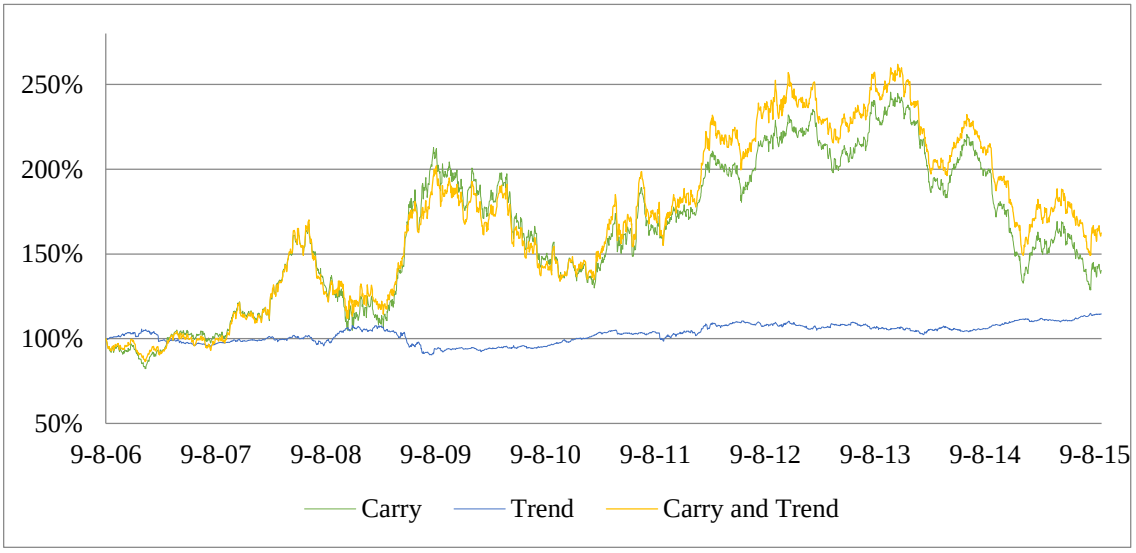
Equity indices present very similar returns to those of carry alone because trend performance is very weak in this asset class. However, there are some changes worth to point, such as the slight improvement in the distribution of returns, both skew and kurtosis statistics present values closer to a normal distribution. Except equities' market, it is clear that the performance metrics indicate that this portfolio is a good deal for investors.

As referred before, trend strategies benefit from price movements, thus, contrary to carry, while during economic downturns carry performs poorly, trend tends to generate positive returns. This suggests that, when combined with carry, trend can work as a hedge to downside risk to which carry us exposed to. To see the real effect of this strategy, in Graph III and Graph IV we have the behavior of currency and commodity's classes separated by the cumulative returns obtained by each strategy. The benefits of this strategy are well represented during the period of 2008, when the market suffered a huge downturn due to the global financial crisis. Being carry very dependent on market movements, returns suffered a continuous decrease in this year, which was considered a risk-off year, so investors tended to sell their positions in order to reduce risk. However, trend benefited from this recession so its returns were positive enough to compensate for the decline that carry suffer. Except for equities, during 2008, the strategy performed well enough to secure that carry and trend performed better than above carry alone (see Appendix 1).

Graph III – Currency's Cumulative Returns (2006-2015)



Graph IV – Commodity's Cumulative Returns (2006-2015)



Concluding, in terms of returns all asset classes benefit from carry and trend as we can see from the graphs above, where the performance of the two strategies combined is superior for carrying either one of the two alone. Overall, despite the increase in risk, the sharpe ratio for our strategy is still higher than for the two previous portfolios, which suggests a significant improvement in the overall risk-adjusted performance. Thus, we can conclude that combining hedging strategies, namely, trend and carry, may offer substantial long-term value to investors in funds with diversified strategies.

4. Risk-adjusted Performance

4.1. CAPM and Fama French Factors

The statistic presented above show that returns obtained from working with carry and trend are robust. In this section, I'll test if there is an explanation for its behaviour starting by regressing the returns obtained using the simple CAPM model, and then adding to the regression the standard risk factors, the Fama French (FF) factors, to test their impact on

the model. Posteriorly I also included in my analysis the downside risk CAPM (DR-CAPM), a model that prices market risk. The results obtained differ between asset classes.

Regarding currency returns, we observe that the intercept is very small (α = 0,000) and, at a 5% level, it's not statistically significant. As far as the coefficient on excess market return (MRP) is concern, we have a positive and statistical significant beta (β = 0,335). Therefore, there is a significant estimate of the market beta on the returns generated by carry and trend. When introducing the FF factors on the regression, conclusions do not change. The alpha continued to be very low and not significant, implying, again, that the intercept had no significance when controlling for the FF factors. The coefficient on excess market return, still statistically significant, increased slightly its value to 0,353. As for the remaining factors introduced, both the size effect (SMB) and the book-to-market effect (HML) negatively impact the returns of the tested portfolio, however, neither is statistically significant. After testing for a joint significance of the independent regressors, at a 5% level, $F_{(3,110)} = 19{,}72$ therefore, we reject the null hypothesis, i.e, the variables do not fail to predict the model. Thus, the model is statistically significant, and 36% of monthly variations of returns are explained by the variables of the model (R^2= 36,05%).

In the case of currencies, we can conclude that carry, over the last years, has been very dependent on the market, "market risk is an important determinant of carry returns" [7]it is a risk-on risk-off strategy and trend is not enough to neutralize completely the negative impact on returns caused by global market fluctuations. On the other side, Clare et al. defend the existence of abnormal returns with positive and significant alpha and no

[7] Clare et al., "Carry and Trend Following Returns in the Foreign Exchange Market."

support for market beta when introducing trend in the strategy. They found no statistically significant relationship between the returns and the risk factors commonly employed to capture systematic risk is found.

Table 4

Currency – CAPM for Carry and 12M Trend-Following Returns

α	MRP			F-stat
0,000 [0,376]	0,335 [7,704]			59,37
α	MRP	SMB	HML	F-stat
0,000 [0,309]	0,353 [7,145]	-0,053 [-0,545]	-0,043 [0,489]	19,72

Regarding equities, the unconditional CAPM model is rejected in the sense that none of the variables contributes to explain portfolio returns obtained with carry and trend. Thus, I do not verify the existence of abnormal returns in the sample. When adding the FF factors to the model, there is no evident change from the previous regression for the alpha and beta of excess market return. As for the introduced coefficients, we see that HML influences negatively the returns and is statistically significant while SMF factor, although positive, it is not statistically significant. At a 5% critical level, we fail to reject the null hypothesis for joint significance. There is no evidence that any of the variables contribute to the fluctuations of returns ($F_{(3,110)} = 2{,}35\ vs\ F_{critical} = 2{,}68$). The results show that neither alpha nor conventional risk factors help to explain carry and trend returns in the equities market (see Appendix 3).

Finally, for commodities, interception coefficient is very small 0.004, representing an estimated abnormal return of 0.004% per month, but again, it's not statistically

significant. As for the market beta, the estimated value was 0,379, which is statistically significant at a 5% level, meaning that as it happens with currencies, returns on commodities market depend on market beta. When including the FF factors in the model, results do not to change. Alpha is still not statistically significant and the market beta coefficient suffered a slight decrease to β = 0,375. As for the new variables in the model, HML appears with a negative coefficient of 0,439 while SML appears with a positive coefficient ($\beta_{SML} = 0{,}159$), however neither are statistically significant. For last, when testing for joint significance, $F_{(3,11o)} = 2{,}93\ vs\ F_{critical} = 2{,}68$, the model is not rejected (see Appendix 3). We can assume that commodity's relationship with the market is similar to the one of currency's, market betas are rather similar. Therefore, due to carry these classes are very dependent on global economic patterns, operating under risk-on risk-off positions, so they move according to economic events. Even with trend in the agreement they still suffer some exposition to market risk.

4.2.Downside Risk CAPM

Downside risk model is introduced as an attempt to explain carry-trend returns, calculated by extending the methodology used by Clare et al. (2015) to measure downside risk on carry returns to the remaining markets in study. High returns of this strategy can be explained by higher betas who reflect downside market returns, "Allowing the market beta to vary depending on the market return is argue to provide an explanation for the level of carry returns when combined with a high price of a down market risk."[8]. The regression estimated to represent the downside risk model is the following:

[8] Ibid.

$$R_{t+1} = \alpha_0 + \alpha_1 D^- + \beta_1 * R_{m,t+1} + \beta_2 * \left(R_{m,t+1} * D^-\right) + \varepsilon_{t+1}$$

The model is represented by a dummy variable, D-, which is 1 if the market return is negative and 0 if is positive, by carry-trend returns, R_{t+1} , and by market risk premium $R_{m,t+1}$.

The DR model fails on explaining currency's market, in the sense that the only variable that is statistically significant is the market risk premium, as we've already observed before. The downside risk beta (β_2) besides negative is insignificant, thus, with consistent to what was predicted by Clare et al. (2015), the results find little support for the DR-CAPM.

Table 5
DR-CAPM

	α	**MRP**	**D-**	**MRP*D-**
Currency	0,004	0,254	-0,001	0,128
	[0,839]	[2,433]	[-0,190]	[0,913]
Equity	-0,008	0,364	-0,007	-0,319
	[-1,219]	[2,194]	[0,689]	[-1,426]
Commodity	0,007	0,349	-0,01	-0,098
	[0,546]	[0,138]	[-0,516]	[-0,236]

Regarding equities, results are similar to those found on currencies. There is no statistical significance in the variables presented in the model with the exception of market risk premium, with a positive marginally significant coefficient, $\beta_2 = 0{,}364$. Again the critical indicator of interaction is statistically insignificant, $t_{stat} = -0{,}236\ vs\ t_{crit} = 1{,}96$, therefore the downside beta model cannot explain carry and trend following returns.

Finally, when testing commodities returns, the DR-CAPM is once again rejected. Therefore, the DR-CAPM appears not to be a good indicator of the carry-trend strategy returns to any of the assets in study.

5. Conclusion

The model provides helpful insights of a portfolio based on carry and 12-month trend-following strategy. By combining carry and trend, higher returns are obtained and are associated with better risk performance, i.e, higher sharpe ratios and more symmetric returns.

Concluding, the combination of trend and carry, may offer substantial long-term value to investors, through a significant improvement in the overall risk-adjusted performance. For all asset classes this is the pattern observed, so there is indeed a similar behaviour for carry and trend-following, independently of the market in question.

When regressing these results however, conclusions diverge. Over the last years it has been proved that carry is very dependent on market behaviour, it's risk-on risk-off strategy, and we proved that for the case of currencies and commodities, trend is not enough to limit its exposure and prevent the negative outcomes caused by this dependence. The unconditional CAPM holds in explaining carry and trend following in both currency and commodity's markets. There is no alpha component and the market beta proved to be the primer driver of returns. There is a positive statistically significant relationship between the returns generated by this strategy and the excess market returns. In the case of equity indices conclusions differ, this risky dependence on the market is not observed so the standard unconditional CAPM together with the most commonly employed risk factors, Fama and French, fail in explaining the positive average returns of

this strategy. Hence, trend is effective in diluting the negative returns caused by market exposure that affects carry. When testing for the downside risk CAPM, results are inconclusive for every asset class discussed.

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Appendix 1 – Cumulative returns for each asset class

Graph V - Equity's Cumulative Returns

Appendix 2 – Trend Strategy

Table 5

6-month Trend Summary Statistics 2006 – 2015

	Currency	Equity	Commodities
Annualized Return (%)	0,78%	-0,51%	1,37%
Annualized Volatility (%)	2,47%	4,18%	5,97%
Sharpe Ratio	0,316	-0,122	0,229
Max. Daily Return (%)	1,49%	1,52%	2,45%
Min. Daily Return (%)	-1,28%	-2,32%	-2,32%
Skew	0,021	-0,429	-0,065
Kurt	10,029	8,708	4,553

Table 6 3-month Trend Summary Statistics 2006 – 2015			
	Currency	**Equity**	**Commodities**
Annualized Return (%)	-0,13%	-0,13%	-2,10%
Annualized Volatility (%)	2,62%	4,32%	6,72%
Sharpe Ratio	-0,050	-0,030	-0,312
Max. Daily Return (%)	1,19%	1,52%	2,45%
Min. Daily Return (%)	-1,44%	-1,72%	-4,68%
Skew	0,024	0,030	-1,133
Kurt	12,273	6,330	13,091

Appendix 3 – CAPM and DR-CAPM

Table 5 Equity - Carry and Trend				
α	**MRP**			**F-stat**
0,000 [0,159]	0,130 [1,87]			3,50
α	**MRP**	**SMB**	**HML**	**F-stat**
0,001 [0,321]	0,14 [1,799]	-0,023 [-1,475]	0,183 [1,314]	2,35

Table 6 Comdty - Carry and Trend				
α	**MRP**			**F-stat**
0,004 [0,762]	0,379 [2,973]			8,84
α	**MRP**	**SMB**	**HML**	**F-stat**
0,005 [0,786]	0,375 [2,58]	-0,05 [-0,176]	0,078 [0,300]	2,93